

FINAL REPORT

**USAID Strategic Objective 8:
Proportion of Households Consuming at Least 1800 Kilocalories
(December 2001 – September 2002)**

**Submitted on
February 21st, 2003**

**PREPARED BY:
HELEN KELLER INTERNATIONAL/BANGLADESH**

I. INTRODUCTION

In Bangladesh, the United States Agency for International Development (USAID) is a major donor in food aid and the rehabilitation of roads. The USAID Bangladesh Strategic Plan FY 2000 – FY 2005 has nine strategic objectives (SO). SO8 relates to improved food security for vulnerable groups. The SO8 program to improve food security under Title II food assistance consists of a two-pronged intervention. Wheat provided to the Government of Bangladesh (GOB) is distributed for direct feeding largely through the GOB-managed food for education program. The second prong of this program is the monetization of the wheat provided to the GOB. This monetization provides the funding for the programs implemented by CARE and World Vision¹. This report describes the results of monitoring the impact of CARE and World Vision programs on food security.

CARE has diverse programs in 206 sub-districts and four towns. Their programs include flood-proofing for rural households in *char* and *hoar*² areas (CARE FP); road improvement, roadside tree plantation, and strengthening the Union Parishads (local government) (CARE BUILD); and, urban slum development projects in four towns (CARE SHAHAR). These programs were all initiated in October 2000. World Vision has programs in 16 sub-districts that provide assistance to vulnerable groups for agricultural production, household income and water and sanitation. These programs began in April 2001. World Vision also provides assistance to sub-district authorities to improve their disaster response capacity.

One of the indicators for assessing SO8 is “percent of households consuming the minimum daily food requirement”. Household energy intake, with the cut-off defined as 1,800 kcal/person/d, was chosen by USAID to measure this indicator. However, households consuming at least 1,800 kcal/person/d are not necessarily food secure. This indicator is one of a series of indicators that need to be examined to determine household food security.

Since 1990 the Nutritional Surveillance Project (NSP) has collected data throughout Bangladesh on indicators of nutrition, health and food security every two months from households with children aged less than 5 years. The six rounds of data collection per year are timed to coincide with the six seasons of Bangladesh, which are related to the seasonality in food production, food consumption and the incidence of infectious diseases. These factors have a major effect on food security, human health and nutrition. Data are currently collected from 54,000 households in 24 rural sub-districts (four in each of the six divisions of the country) and from 9,000 households in the urban slums of three major cities (Dhaka, Chittagong and Khulna) each year. The rural sample provides data that are representative at the divisional and national levels.

Because the NSP is a flexible system, it was able to easily adapt data collection to meet USAID’s need for data on the SO8 indicator. This was done by expanding the surveillance system into CARE and World Vision program areas, designing additional data collection tools, and recruiting and training new NGO staff to collect and enter the data. The nationally representative sample of rural households and the sample of urban slum households provides external comparison groups against which to compare data collected from the CARE and World Vision program areas.

Collection of data on the SO8 indicator by the NSP commenced in December 2001 and was repeated in February/March, April/May, June/July and August/September 2002. This report describes the findings of all five rounds of data collection on the SO8 indicator, conducted from December 2001 to September 2002.

¹ USAID/Bangladesh Strategic Plan FY 2002 – FY 2005.

² A *char* is an island that periodically emerges from a river-bed due to accretion. It may be seasonal or may survive for several decades. A *hoar* is a seasonal water body that forms during the Monsoon rains.

II. METHODS

A. Sampling design

Sample size determination

The differences in the scale, type and intensity of the CARE and World Vision programs meant that they needed to be monitored separately. To determine the sample size needed to estimate the percentage of households that consumed ≥ 1800 kcal/person/d at a confidence level of 95% and with an absolute precision of 5%, the anticipated percentage was set at 50%³. Based on this and other assumptions, the minimum sample was calculated to be 1,300 households for each program and comparison area.

Sampling of program and comparison sub-districts

Data collection was continued in the 24 rural NSP sub-districts ('NSP national rural comparison') and urban slums in three cities ('NSP urban comparison') to provide rural and urban slum comparison groups against which to compare data collected in the CARE and World Vision program areas. The program sub-districts and urban sites were selected as follows:

- *CARE BUILD*: The working area of CARE BUILD included nine of the 24 NSP sub-districts. These nine sub-districts were selected for the study, together with an additional sub-district to bring the total to 10 sub-districts. As CARE is only working in certain unions in these sub-districts the NSP comparison group was provided by households sampled in the other unions within the same sub-districts.
- *CARE FP*: Four of the 14 sub-districts participating in the CARE FP program were randomly selected. Only villages in unions in which the program was actually being implemented were eligible for selection. Data collected in these four sub-districts were compared with the NSP national rural comparison.
- *CARE SHAHAR*: Slums in three of four secondary cities participating in the CARE SHAHAR program – Mymensingh, Jessore and Dinajpur – were randomly selected for study. Data collected in these three cities were compared with the NSP urban comparison.
- *World Vision*: Of the 16 sub-districts in which World Vision is working, seven were excluded because CARE was also working there, and one sub-district in the Chittagong Hill Tracts was excluded due to the lack of a suitable NSP comparison. From the remaining eight sub-districts, four were randomly selected for study. Data collected in these four sub-districts were compared with the NSP national rural comparison.

Figure 1 shows the location of the program and comparison data collection areas.

Sampling procedure

The NSP uses a stratified, multi-stage cluster sampling procedure. In the CARE BUILD, CARE FP, World Vision and NSP rural sub-districts, fifteen *mauza* (a sub-division of unions) were randomly selected. For the CARE BUILD and FP sub-districts only mauza that were currently participating or were expected to participate in the programs were eligible for selection. One village was randomly sampled from each mauza, and households were systematically selected from this village. In the CARE SHAHAR and NSP urban sites, 15 slums were randomly sampled, and households were selected from each slum. The number of

³ This percentage provides the 'safest' estimate since the sample size required is largest when the percentage is 50%.

households selected from each village and from each slum was set so that a minimum sample size of 1,300 households were selected from each of the CARE and World Vision program areas⁴.

B. Data collection

The data were collected by NGOs that were recruited, trained and monitored by HKI. A two-week training course was conducted for the NGO staff on methods to record household food intake and to collect data on other indicators of food security and nutrition. All data were recorded onto structured and pre-coded questionnaires by the NGO fieldworkers.

The NSP used a 7-day list-recall method to collect data on energy intake⁵. The fieldworkers asked the person responsible for cooking the household food to estimate the quantity of all the foods and beverages consumed by the household in the last seven days, excluding the day of the interview. If a food item was bought piece-meal or in portions, such as fruits, vegetables and some fish, a photographic guide was used to help the respondent estimate the size of the food item or portion consumed (small, medium or large). The number of breakfasts, lunches and dinners eaten by household members outside the house was also recorded.

Data were also collected on the demographic and socio-economic characteristics of the household, the recent health and anthropometric measurements of children aged less than 5 years and their mothers, and other indicators of household food security.

C. Data entry, processing and analysis

Data were entered into computers by partner NGOs and then cleaned and checked by HKI. Programs were written in Visual BASIC to convert data on the weight of food and beverage items consumed by each household into an estimate of household energy consumption as follows. The average weight of small, medium and large foods that were obtained piecemeal was determined by weighing a total sample of at least 100 items obtained from a number of markets in and around Dhaka. The food composition data in the Bangladesh food tables⁶, which gives the energy content of common foods per 100g of edible portion, were entered into a computer. The energy content of foods not in the existing food tables was estimated from the closest food or from a group average for the type of food. The energy content of processed foods that were not recorded in the food-tables were obtained from Dhaka University or estimated from recipes. A correction factor was applied to correct for the proportion of each food item that is inedible and discarded. The energy content of meals eaten outside the house by household members was estimated by calculating the average energy consumed by children (aged <12 years), men and women at breakfast, lunch and dinner inside the house. In order to make the latter calculations, weighting factors were applied for (1) the proportion of daily energy consumed at breakfast, lunch and dinner, and (2) the relative energy consumed by children, men and women.

All data on energy intake were then summed in order to estimate the total amount of energy consumed by the household in the previous seven days. This estimate was divided by the total number of household members, regardless of their age, and by seven to obtain energy

⁴ The number of households selected from each village or slum was not the same for all programs, because the number of sampled rural sub-districts and urban slum sites varied between the programs. Between 9-22 households were selected from each program village and each NSP comparison village, 26-27 households from each program urban slum, and 21-22 households from each NSP comparison urban slum.

⁵ Gibson, R.S. (1990). *Principles of Nutritional Assessment*. Oxford University Press, Oxford.

⁶ Helen Keller International and the World Food Program (1988). *Tables of Nutrient Composition of Bangladesh Foods*. Helen Keller International and the World Food Program, Dhaka.

intake/person/d. The percentage of households that consumed at least 1800 kcal/person/d was then calculated for each of the CARE and World Vision program areas, and the same statistic was calculated for the NSP national rural comparison and NSP urban comparison.

III. RESULTS

Data were collected from a total of 50,876 rural households (range 10,172 to 10,180 per round) and 12,539 urban slum households (range 2498 to 2518 per round) during the five rounds of data collection between December 2001 and September 2002. Tables 1(a-f) present the socio-demographic characteristics of the households in the food security program areas and in the NSP comparison areas for each round and for the aggregated data of all five rounds. Tables 2(a-f) show the percentage of households with an energy intake ≥ 1800 kcal/person/d in the USAID food security program areas and in the NSP comparison areas for each round and for the aggregated data of all five rounds. Tables 3(a-f) show the percentage of energy provided by the main food groups in the USAID food security program areas and in the NSP comparison areas for each round and for the aggregated data of all five rounds. The findings for each program are described below.

A. CARE BUILD

The socio-demographic characteristics of households in the CARE BUILD program unions were all similar to households in the non-program unions.

Figure 2 shows the percentage of households with an energy intake ≥ 1800 kcal/person/d in the CARE BUILD program unions and in the comparison non-program unions between December 2001 and September 2002. This percentage varied from 76.8% to 82.1% (overall 78.8%) in the CARE BUILD program unions and from 75.5% to 80.8% (overall 78.3%) in the non-program unions. There was no significant difference in the percentage between the program unions and non-program unions within each round or between the rounds within either the program unions or non-program unions.

The distribution of energy among different food groups provides an indication of the quality of the diet. Figure 3 shows aggregate data for the period December 2001 to September 2002 on the percentage of energy provided by major food groups in the CARE BUILD program unions and in the comparison non-program unions. The bulk of the energy was provided by cereals (76-77%), which indicates that the quality of the diet is poor because cereals are a relatively poor source of micronutrients. Little energy was provided by high-quality foods including pulses (1%), fruits and vegetables (8%) and animal products (3-4%). There was no significant difference between the program and non-program areas in the energy provided by the different food groups. The differences between the rounds in the energy provided by cereals within both the program and non-program unions were also not significant.

B. CARE Flood Proofing

Compared with households in the NSP national rural comparison, a significantly lower percentage of household cooks in the CARE Flood-Proofing sub-districts were educated (overall⁷ 30% vs 51%); the percentage of households with manual labor as the main source of income was significantly higher (overall 31% vs 18%); a significantly lower percentage of

⁷ Aggregate data for the period December 2001 to September 2002.

households had a closed latrine (overall 11% vs 36%); and households spent significantly less on food (overall Tk 15 vs Tk 36 per person in the last week). These differences suggest that the socio-economic status of households in the CARE Flood-Proofing sub-districts was lower than in the NSP national rural comparison.

Figure 4 shows the percentage of households with an energy intake ≥ 1800 kcal/person/d in the CARE Flood-Proofing sub-districts and in the NSP national rural comparison between December 2001 and September 2002. This percentage varied from 77.4% to 82.2% (overall 80.1%) in the CARE Flood-Proofing sub-districts and from 76.5% to 78.9% (overall 77.6%) in the NSP national rural comparison. The percentage was slightly higher (1.2–5.7%) in the CARE Flood-Proofing sub-districts than in the comparison sub-districts in every round except August/September (0.7% lower), but these differences were not significant. The differences between the rounds within both the program and the NSP national rural comparison were not significant.

Figure 5 shows aggregate data for the period December 2001 to September 2002 on the percentage of energy provided by the major food groups in CARE Flood-Proofing sub-districts and in the NSP national rural comparison. Over 75% of energy was provided by cereals, 2% by pulses, 7% by fruits and vegetables, 3-4% by animal products and 7-12% by other foods, such as sugar, oils, nuts and processed foods. The energy provided by cereals was significantly higher in the CARE Flood-Proofing sub-districts than the NSP national rural comparison in every round except December 2001 to January 2002. The differences between the rounds in the energy provided by cereals within both the program and comparison sub-districts were not significant.

C. World Vision

The socio-demographic characteristics of households in the World Vision sub-districts were similar to households in the NSP national rural comparison.

Figure 6 shows the percentage of households with an energy intake ≥ 1800 kcal/person/d in the World Vision sub-districts and in the NSP national rural comparison between December 2001 and September 2002⁸. This percentage varied from 74.0% to 81.5% (overall 78.3%) in the World Vision sub-districts and from 76.5% to 78.9% (overall 77.6%) in the NSP national rural comparison. There was no significant difference in the percentage between the program and NSP national rural comparison within each round or between the rounds within either the program or comparison group.

Figure 7 shows aggregate data for the period December 2001 to September 2002 on the percentage of energy provided by the major food groups in the World Vision sub-districts and in the NSP national rural comparison⁸. There was no significant difference between the program and comparison sub-districts in the energy provided by the different food groups: 74-75% of energy was provided by cereals, 1-2% by pulses, 7-8% by fruits and vegetables, 4% by animal products and 12-13% by other foods. The differences between the rounds in the energy provided by cereals within both the program and comparison sub-districts were also not significant.

⁸ Data collected in one of the four World Vision *upazila* (Satkhira Sadar) in June-July were excluded because data cleaning procedures indicated that household food intake may have been underestimated.

D. CARE SHAHAR

Households in the CARE SHAHAR sites spent significantly less on food than households in the comparison sites (Tk 54 *vs* Tk 85 per person in the last week). All other socio-demographic characteristics in the CARE SHAHAR and comparison sites were similar.

Figure 8 shows the percentage of households with an energy intake ≥ 1800 kcal/person/d in the CARE SHAHAR sites and in the comparison NSP urban sites between December 2001 and September 2002. This percentage varied from 61.6% to 66.5% (overall 63.4%) in the CARE SHAHAR sites and from 56.4% to 63.1% (overall 59.7%) in the comparison NSP urban sites. The percentage was slightly higher (0.5-7.3%) in the CARE SHAHAR sites than in the comparison NSP urban sites in every round except December/January (0.9% lower), but these differences were not significant. The differences between the rounds within both the program sites and comparison NSP urban sites were not significant.

Figure 9 shows aggregate data for the period December 2001 to September 2002 on the percentage of energy provided by the major food groups in the CARE SHAHAR sites and in the comparison NSP urban sites. There was no significant difference between the program and non-program sites in the energy provided by the different food groups: 65-67% of energy was provided by cereals, and 23% by pulses, 9-10% by fruits and vegetables, 45% by animal products and 17-18% by other foods. The differences between the rounds in the energy provided by cereals within both the program and non-program sites were also not significant.

IV. DISCUSSION

The findings show that the percentage of households with an energy intake ≥ 1800 kcal/person/d in the USAID food security program working areas was similar to the NSP comparison areas in all five rounds of data collection between December 2001 and September 2002. There was no significant difference in this percentage between the rounds in either the program or comparison areas.

Baseline data were not collected before the program interventions were introduced, and so it is not possible to determine whether there has been an improvement in the food security of households in the program areas relative to households in the comparison areas since the start of the programs. However, the findings do indicate that over the five rounds of data collection, which covered ten months of interventions, there was no change in the percentage of households with an energy intake ≥ 1800 kcal/person/d in the program areas relative to the comparison areas. It is possible that a longer period of time is needed for the interventions to have a detectable impact on household food security. Continued monitoring of household food security in both the program and comparison areas is therefore crucial, as this will enable any subsequent change in the SO8 indicator in the program areas relative to the comparison areas to be identified. As there is little seasonal variation in household energy intake, once- or twice-yearly monitoring of the SO8 indicator should be sufficient.

Although the lack of baseline data makes it very difficult to assess the impact of the programs on household food insecurity, the findings from the CARE Flood-Proofing sub-districts provide some plausible evidence of an impact. Compared with the comparison sub-districts, households in the CARE Flood-Proofing sub-districts were more likely to rely on manual labour as the main source of income, spent less on food, had cooks that were less educated and were less likely to have a closed latrine. These findings suggest that households in the

program sub-districts had lower socio-economic status than the comparison households and yet their energy intake was similar. In fact, the percentage of households with an energy intake ≥ 1800 kcal/person/d in the program households was slightly higher (overall 2.5%) than in the comparison households in all rounds except August/September, although the differences were not significant. This finding may indicate that the program improved household food security, but that this impact had already been established before data collection began and was maintained during the past year.

The SO8 indicator has several important limitations as an indicator of household food security. First, the 1800 kcal/person/d threshold is very low and many households with an energy intake above this threshold are likely to be food insecure⁹. Second, the SO8 indicator provides information on household energy intake only and not on the quality of the diet. Dietary quality is an important dimension of household food security because the adequacy of a diet is determined by its micronutrient and macronutrient content as well as its energy content. When poor household experience hardship, their first priority is to meet their energy needs, and so they tend to reduce their intake of expensive high-quality foods, such as animal products, vegetables and fruits, and substitute them with cheap staples, such as rice and wheat, which are relatively poor sources of micronutrients. Complementary indicators of dietary quality are therefore needed to provide a more accurate assessment of household food security. Third, the indicator is at the household level and therefore it cannot be used to determine whether particular groups in the population, such as underfives, adolescents, and pregnant or breastfeeding women, have adequate energy intake. This is important in Bangladesh because intra-household distribution of food favors adult men and boys, even though young children and pregnant or breastfeeding women have proportionately higher energy and nutrient requirements. Fourth, the indicator does not measure nutritional status, which is the ultimate outcome of household food security.

In this report, the percentage of energy provided by different food groups, including cereals, pulses, fruits and vegetables and animal products, was used to assess the quality of the diet. The findings show that the diversity - and therefore quality - of the household diet in Bangladesh is extremely low. Micronutrient needs are unlikely to be met because micronutrient-rich foods such as fruits and vegetables and animal products provided only 12%¹⁰ of household energy intake in the rural USAID food security program areas and over 75% of energy was provided by cereals, which have a very low micronutrient content. The percentage of energy provided by cereals was significantly higher in the CARE Flood-Proofing sub-districts compared with the NSP comparison areas, but otherwise the quality of the diet in the program and comparison areas was equally poor. Data collected in the CARE SHAHAR urban sites shows that the percentage of energy provided by cereals (overall 67%) was lower than in the rural areas. However, this does not imply that the quality of the diet in these sites was better because energy intake from pulses (overall 2%), fruits and vegetables (overall 9%) and animal products (overall 4%) was negligibly higher. Most of the difference between the rural areas and urban sites was due to a greater intake of energy from 'other foods' in the urban sites; these foods include sugar, oil and processed foods, many of which are low in micronutrients. There was no difference in the distribution of energy by food groups between the rounds, which implies that the quality of the diet did not vary seasonally.

These findings indicate that much more needs to be done to improve the quality of household diets in Bangladesh, as well as energy intake. The agriculture sector in Bangladesh has made substantial gains in increasing rice production over the past three decades but the availability

⁹ Households in Bangladesh with an energy intake < 1800 kcal/person/d are considered to have severe food insecurity and to be 'extreme' or 'hard-core' poor. See: BBS (1998). Poverty lines and poverty measurements. In: *Household Expenditure Survey 1995-6*, pp. 115-8. Bangladesh Bureau of Statistics, Dhaka.

¹⁰ Overall, for period December 2001 – September 2002

of non-rice foods is still far short of requirements¹¹⁻¹². Policies and programs to alleviate undernutrition should therefore give greater emphasis to strategies specifically targeted at poor households to improve the availability and access to micronutrient-rich foods. Programs with proven success in improving the quality of household diets include HKI's homestead food production program, which provides support to poor households to increase the production and consumption of micronutrient-rich foods through home gardening, poultry raising, animal husbandry and/or fish cultivation. Households participating in this program have better diets because they have more produce to consume and/or sell to buy other high-quality food items. Many of these food items are good sources of micronutrients, as well as energy, particularly animal products.

In summary, the findings show that between December 2001 and September 2002, 78.9% of rural households and 63.4% of urban slum households in USAID food security program areas had an energy intake ≥ 1800 kcal/person/d, compared with 77.6% of households in the nationally representative NSP rural sample, and 59.7% of households in the NSP urban sites. There were no significant differences between the program and comparison areas, within each round or overall, and no significant differences between the rounds in either the program or comparison areas. The only program that may have had a slight impact was CARE Flood Proofing. The quality of the household diet in the USAID food security program areas, as well as elsewhere in Bangladesh, is very low and should be addressed.

¹¹ FAO (1997) *The State of Food and Agriculture 1997*. FAO Series Number 30. Food and Agriculture Organization, Rome.

¹² Asian Vegetable Research and Development Center (1992) Vegetable production and marketing: proceedings of a national review and planning workshop, Bangladesh, 26-29 January 1992. Publication No. 92-379, pp. 21-30. Asian Vegetable Research and Development Center, Tainan, Taiwan.

Figure 1 **USAID food security program areas and comparison areas for data collection on the SO8 indicator between December 2001 and September 2002 in Bangladesh**

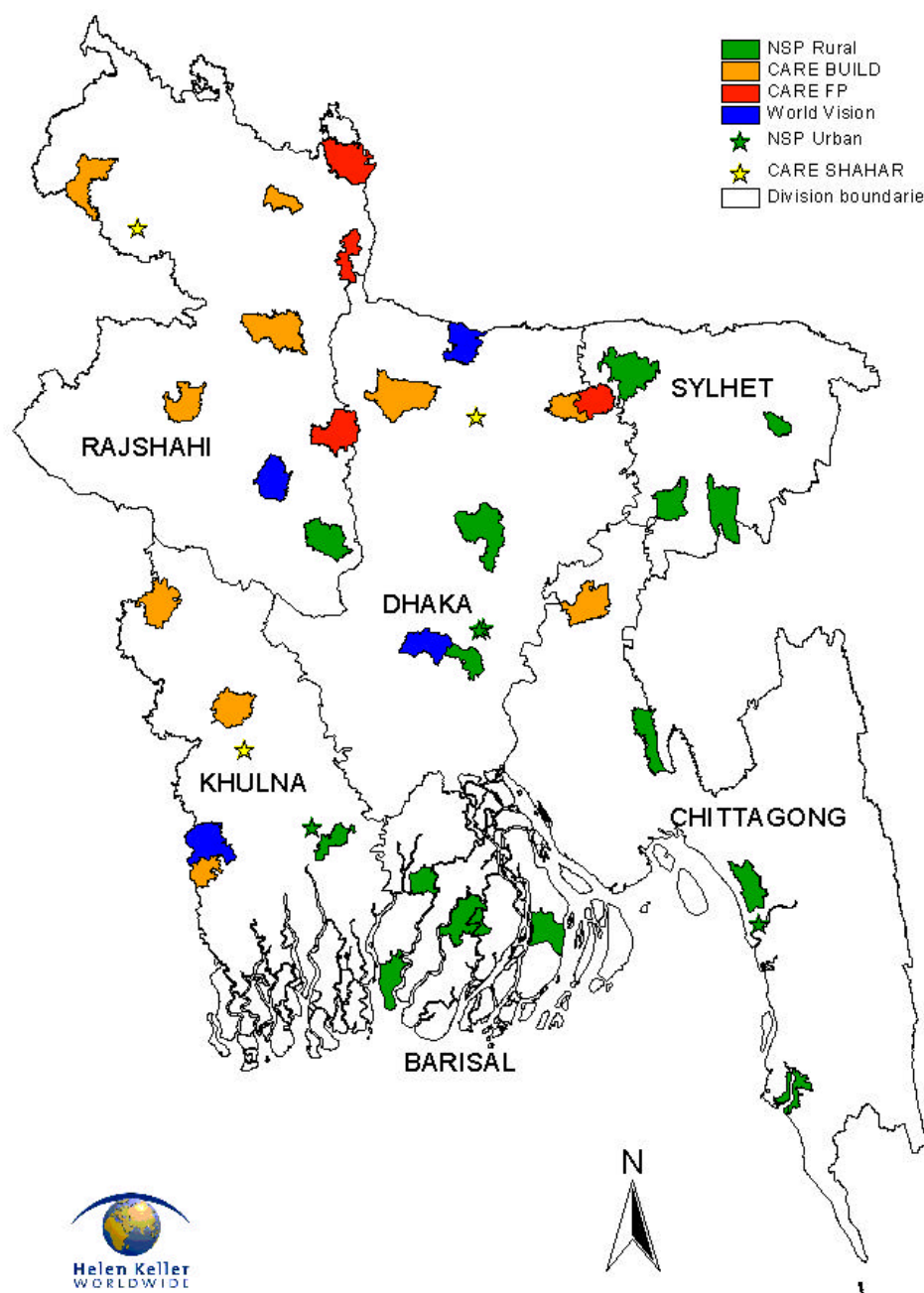


Table 1a: Socio-demographic characteristics of households in USAID food security program areas and in comparison areas in Bangladesh, December 2001 to January 2002.

	CARE BUILD <i>n</i> =1350	CARE comparison <i>n</i> =1350	CARE FP <i>n</i> =1298	World Vision <i>n</i> =1297	NSP rural <i>n</i> =6263	CARE SHAHAR <i>n</i> =1204	NSP urban <i>n</i> =1311
Socio-demographic indicators							
Number of household members (mean)	5.2	5.1	5.7	5.2	5.6	5.3	5.2
Female decision maker (%)	5	5	5	7	7	8	13
Person who cooks the household meals is educated (%)	46	46	31*	42	51	46	41
Manual labor as main source of income (%)	22	24	30	25	17	15	17
Clean source of drinking water (%)	97	98	98	97	98	100	99
Closed latrine (%)	42	37	11*	34	45	55*	89
Functionally landless (%)	60	61	59	61	64	-	-
Involved in agricultural production (%)	77	75	76	74	67	-	-
Homestead garden (%)	82	81	88	70	81	-	-
Food-related indicators							
Woman decides what food is bought for the household (%)	6	5	4	7	7	20	28
Woman cooks the household meals (%)	97	99	98	100	99	99	100
Household food expenditure (Tk)/person in last 7 days (g.mean)	31	29	16*	23	37	67	98
Loan for food in last month (%)	12	12	18	15	10	15	14

* Indicates significant difference between program and comparison ($p < 0.05$).

Table 1b: Socio-demographic characteristics of households in USAID food security program areas and in comparison areas in Bangladesh, February to March 2002

	CARE BUILD <i>n</i> =1350	CARE comparison <i>n</i> =1350	CARE FP <i>n</i> =1302	World Vision <i>n</i> =1300	NSP rural <i>n</i> =6264	CARE SHAHAR <i>n</i> =1201	NSP urban <i>n</i> =1303
Socio-demographic indicators							
Number of household members (mean)	5.1	5.1	5.9	5.3	5.5	5.2	5.2
Female decision maker (%)	5	7	3	6	7	7	9
Person who cooks the household meals is educated (%)	50	47	30*	48	52	40	38
Manual labor as main source of income (%)	22	22	33*	25	18	16	13
Clean source of drinking water (%)	97	99	99	99	98	100	99
Closed latrine (%)	39	35	14*	32	41	38*	80
Functionally landless (%)	60	59	59	59	66	-	-
Involved in agricultural production (%)	75	76	75	72	66	-	-
Homestead garden (%)	78	79	87	66	81	-	-
Food-related indicators							
Woman decides what food is bought for the household (%)	3	4	2	6	4	13	23
Woman cooks the household meals (%)	100	99	99	100	100	100	100
Household food expenditure (Tk)/person in last 7 days (g.mean)	26	27	13*	20	35	49	80
Loan for food in last month (%)	12	14	23	9	11	19	10

* Indicates significant difference between program and comparison ($p < 0.05$).

Table 1c: Socio-demographic characteristics of households in USAID food security program areas and in comparison areas in Bangladesh, April to May 2002

	CARE BUILD <i>n</i> =1350	CARE comparison <i>n</i> =1350	CARE FP <i>n</i> =1300	World Vision <i>n</i> =1300	NSP rural <i>n</i> =6259	CARE SHAHAR <i>n</i> =1202	NSP urban <i>n</i> =1316
Socio-demographic indicators							
Number of household members (mean)	5.0	5.1	5.7	5.5	5.5	5.2	5.0
Female decision maker (%)	5	4	3	5	5	7	9
Person who cooks the household meals is educated (%)	44	43	27*	46	50	41	42
Manual labor as main source of income (%)	24	23	34*	25	20	16	12
Clean source of drinking water (%)	97	99	99	99	98	99	100
Closed latrine (%)	34	28	11*	28	30	46	81
Functionally landless (%)	66	66	62	62	68	-	-
Involved in agricultural production (%)	69	71	73	70	59	-	-
Homestead garden (%)	81	83	80	69	84	-	-
Food-related indicators							
Woman decides what food is bought for the household (%)	4	3	2	5	3	11	26
Woman cooks the household meals (%)	99	99	100	100	99	100	100
Household food expenditure (Tk)/person in last 7 days (g.mean)	26	27	16*	26	36	53*	80
Loan for food in last month (%)	14	11	26	8	9	17	8

* Indicates significant difference between program and comparison ($p < 0.05$).

Table 1d: Socio-demographic characteristics of households in USAID food security program areas and in comparison areas in Bangladesh, June to July 2002

	CARE BUILD <i>n</i> =1350	CARE comparison <i>n</i> =1350	CARE FP <i>n</i> =1300	World Vision <i>n</i> =973	NSP rural <i>n</i> =6263	CARE SHAHAR <i>n</i> =1196	NSP urban <i>n</i> =1308
Socio-demographic indicators							
Number of household members (mean)	5.0	5.1	5.6	5.2	5.4	5.1	4.9
Female decision maker (%)	4	4	3*	7	6	9	8
Person who cooks the household meals is educated (%)	42	48	30*	43	51	43	40
Manual labor as main source of income (%)	24	22	28	25	18	17	11
Clean source of drinking water (%)	98	99	99	97	97	100	99
Closed latrine (%)	28	29	10*	26	30	47	78
Functionally landless (%)	69	62	61	61	68	-	-
Involved in agricultural production (%)	69	69	73	64	57	-	-
Homestead garden (%)	87	83	82	74	85	-	-
Food-related indicators							
Woman decides what food is bought for the household (%)	3	3	2	7	4	10	19
Woman cooks the household meals (%)	100	100	100	99	100	99	99
Household food expenditure (Tk)/person in last 7 days (g.mean)	26	24	14*	28	36	51*	83
Loan for food in last month (%)	11	13	18	9	10	18*	8

* Indicates significant difference between program and comparison ($p < 0.05$).

Table 1e: Socio-demographic characteristics of households in USAID food security program areas and in comparison areas in Bangladesh, August to September 2002

	CARE BUILD <i>n</i> =1350	CARE comparison <i>n</i> =1350	CARE FP <i>n</i> =1297	World Vision <i>n</i> =1300	NSP rural <i>n</i> =6265	CARE SHAHAR <i>n</i> =1195	NSP urban <i>n</i> =1303
Socio-demographic indicators							
Number of household members (mean)	5.1	5.1	5.5	5.1	5.5	5.2	4.9
Female decision maker (%)	4	5	3	6	6	9	9
Person who cooks the household meals is educated (%)	49	44	30*	45	51	44	41
Manual labor as main source of income (%)	22	20	29*	24	15	16	14
Clean source of drinking water (%)	99	100	99	100	98	99	99
Closed latrine (%)	32	30	12*	27	31	48	84
Functionally landless (%)	64	62	62	67	67	-	-
Involved in agricultural production (%)	71	70	72	62	58	-	-
Homestead garden (%)	84	85	85	73	86	-	-
Food-related indicators							
Woman decides what food is bought for the household (%)	3	3	2	5	4	11	22
Woman cooks the household meals (%)	100	99	100	100	100	100	99
Household food expenditure (Tk)/person in last 7 days (g.mean)	27	28	14*	26	37	53	84
Loan for food in last month (%)	12	14	14	11	11	13	7

* Indicates significant difference between program and comparison ($p < 0.05$).

Table 1f: Socio-demographic characteristics of households in USAID food security program areas and in comparison areas in Bangladesh, aggregated data for the period December 2001 to September 2002

	CARE BUILD <i>n</i> =6750	CARE comparison <i>n</i> =6750	CARE FP <i>n</i> =6497	World Vision <i>n</i> =6170	NSP rural <i>n</i> =31314	CARE SHAHAR <i>n</i> =5998	NSP urban <i>n</i> =6541
Socio-demographic indicators							
Number of household members (mean)	5.1	5.1	5.7	5.3	5.5	5.2	5.0
Female decision maker (%)	5	5	3	6	6	8	10
Person who cooks the household meals is educated (%)	46	46	30*	45	51	43	40
Manual labor as main source of income (%)	23	22	31*	25	18	16	14
Clean source of drinking water (%)	98	99	99	99	98	99	99
Closed latrine (%)	35	32	11*	30	36	47	82
Functionally landless (%)	64	62	61	62	67	-	-
Involved in agricultural production (%)	72	72	74	69	61	-	-
Homestead garden (%)	83	82	84	70	83	-	-
Food-related indicators							
Woman decides what food is bought for the household (%)	4	4	2	6	5	13	24
Woman cooks the household meals (%)	99	99	99	100	100	100	99
Household food expenditure (Tk)/person in last 7 days (g.mean)	27	27	15*	24	36	54*	85
Loan for food in last month (%)	12	13	20	10	10	16	10

* Indicates significant difference between program and comparison ($p < 0.05$).

Table 2a: The percentage of households with an energy intake ≥ 1800 kcal/person/d in USAID food security program areas and in comparison areas in Bangladesh, December 2001 to January 2002 ¹

USAID food security program areas					Comparison areas				
	No. of sub-districts	No. of households	% households consuming ≥ 1800 kcal	95% C. I. adjusted for design effect		No. of sub-districts	No. of households	% households consuming ≥ 1800 kcal	95% C. I. adjusted for design effect
Rural									
CARE BUILD program unions	10	1348	78.0	(68.6-87.3)	CARE BUILD other unions	10	1349	80.8	(73.4-88.2)
CARE Flood proofing	4	1298	82.2	(80.0-84.4)	] NSP rural	24	6260	76.5	(72.0-81.1)
World Vision	4	1296	76.4	(63.3-89.5)					
Total	18	3942	78.2	(71.3-85.1)					
Urban									
CARE SHAHAR	3	1204	62.2	(42.8-81.6)	NSP urban sites	4	1311	63.1	(43.9-82.3)

¹ The energy content of foods have mostly been taken from: HKI/WFP (1988) *Tables of Nutrient Composition of Bangladesh Foods*. Dhaka: Helen Keller International.

Table 2b: The percentage of households with an energy intake ≥ 1800 kcal/person/d in USAID food security program areas and in comparison areas in Bangladesh, February to March 2002 ¹

USAID food security program areas					Comparison areas				
	No. of sub-districts	No. of households	% households consuming ≥1800 kcal	95% C. I. adjusted for design effect		No. of sub-districts	No. of households	% households consuming ≥1800 kcal	95% C. I. adjusted for design effect
Rural									
CARE BUILD program unions	10	1348	78.8	(73.6-84.0)	CARE BUILD other unions	10	1349	78.9	(73.4-84.5)
CARE Flood proofing	4	1302	80.0	(76.9-83.2)	] NSP rural	24	6262	76.7	(72.6-80.9)
World Vision	4	1300	81.5	(73.9-89.0)					
Total	18	3950	79.6	(75.7-83.6)					
Urban									
CARE SHAHAR	3	1201	63.1	(41.1-85.1)	NSP urban sites	4	1302	56.4	(41.2-71.6)

¹ The energy content of foods have mostly been taken from: HKI/WFP (1988) *Tables of Nutrient Composition of Bangladesh Foods*. Dhaka: Helen Keller International.

Table 2c: The percentage of households with an energy intake ≥ 1800 kcal/person/d in USAID food security program areas and in comparison areas in Bangladesh, April to May 2002 ¹

USAID food security program areas					Comparison areas				
	No. of sub-districts	No. of households	% households consuming ≥ 1800 kcal	95% C. I. adjusted for design effect		No. of sub-districts	No. of households	% households consuming ≥ 1800 kcal	95% C. I. adjusted for design effect
Rural									
CARE BUILD program unions	10	1346	82.1	(76.8-87.3)	CARE BUILD other unions	10	1347	78.2	(71.5-84.8)
CARE Flood proofing	4	1300	80.1	(74.9-85.2)	NSP rural	24	6252	78.9	(74.5-83.3)
World Vision	4	1299	79.5	(72.1-87.0)					
Total	18	3945	81.2	(77.2-85.1)					
Urban									
CARE SHAHAR	3	1196	66.5	(43.3-89.7)	NSP urban sites	4	1315	61.7	(42.6-80.7)

¹ The energy content of foods have mostly been taken from: HKI/WFP (1988) *Tables of Nutrient Composition of Bangladesh Foods*. Dhaka: Helen Keller International.

Table 2d: The percentage of households with an energy intake ≥ 1800 kcal/person/d in USAID food security program areas and in comparison areas in Bangladesh, June to July 2002 ¹

USAID food security program areas					Comparison areas				
	No. of sub-districts	No. of households	% households consuming ≥1800 kcal	95% C. I. adjusted for design effect		No. of sub-districts	No. of households	% households consuming ≥1800 kcal	95% C. I. adjusted for design effect
Rural									
CARE BUILD program unions	10	1349	76.8	(69.8 - 83.8)	CARE BUILD other unions	10	1348	77.9	(72.9 - 82.8)
CARE Flood proofing	4	1300	81.0	(76.0 - 86.0)	NSP rural	24	6258	77.5	(73.4 - 81.7)
World Vision	3	973	80.6	(76.4-84.7)					
Total	17	3622	78.4	(73.7-83.1)					
Urban									
CARE SHAHAR	3	1194	63.7	(40.2 - 87.3)	NSP urban sites	4	1306	56.4	(50.6 - 62.3)

¹ The energy content of foods have mostly been taken from: HKI/WFP (1988) *Tables of Nutrient Composition of Bangladesh Foods*. Dhaka: Helen Keller International.

Table 2e: The percentage of households with an energy intake ≥ 1800 kcal/person/d in USAID food security program areas and in comparison areas in Bangladesh, August to September 2002

USAID food security program areas					Comparison areas				
	No. of sub-districts	No. of households	% households consuming ≥ 1800 kcal	95% C. I. adjusted for design effect		No. of sub-districts	No. of households	% households consuming ≥ 1800 kcal	95% C. I. adjusted for design effect
Rural									
CARE BUILD program unions	10	1347	78.2	(71.5-85.0)	CARE BUILD other unions	10	1349	75.5	(64.8-86.3)
CARE Flood proofing	4	1296	77.4	(69.2-85.6)	] NSP rural	24	6257	78.1	(72.6-83.5)
World Vision	4	1300	74.0	(59.4-88.6)					
Total	18	3943	77.0	(71.1-83.0)					
Urban									
CARE SHAHAR	3	1187	61.6	(40.3-82.8)	NSP urban sites	4	1302	61.1	(52.8-69.3)

¹ The energy content of foods have mostly been taken from: HKI/WFP (1988) *Tables of Nutrient Composition of Bangladesh Foods*. Dhaka: Helen Keller International.

Table 2f: The percentage of households with an energy intake ≥ 1800 kcal/person/d in USAID food security program areas and in comparison areas in Bangladesh, aggregated data for the period December 2001 to September 2002 ¹

USAID food security program areas					Comparison areas				
	No. of sub-districts	No. of households	% households consuming ≥1800 kcal	95% C. I. adjusted for design effect		No. of sub-districts	No. of households	% households consuming ≥1800 kcal	95% C. I. adjusted for design effect
Rural									
CARE BUILD program unions	10	6738	78.8	(73.0-84.6)	CARE BUILD other unions	10	6742	78.3	(71.9-84.6)
CARE Flood proofing	4	6496	80.1	(76.5-83.8)	] NSP rural	24	31.289	77.6	(73.4-81.7)
World Vision	4	6168	78.3	(74.8-81.8)					
Total	18	19402	78.9	(75.0-82.7)					
Urban									
CARE SHAHAR	3	5982	63.4	(41.8-85.1)	NSP urban sites	4	6536	59.7	(46.7-72.8)

¹ The energy content of foods have mostly been taken from: HKI/WFP (1988) *Tables of Nutrient Composition of Bangladesh Foods*. Dhaka: Helen Keller International.

Table 3a: The mean percentage of household energy intake provided by different food groups in USAID food security program areas and in comparison areas in Bangladesh, December 2001 to January 2002

USAID food security program areas			Comparison areas		
Rural					
CARE BUILD program unions	Cereals	75	CARE BUILD other unions	Cereals	78
	Pulses	2		Pulses	1
	Fruits and vegetables	7		Fruits and vegetables	7
	Animal products	4		Animal products	3
	Other	13		Other	11
CARE Flood Proofing	Cereals	80	] NSP rural		
	Pulses	2			
	Fruits and vegetables	7			
	Animal products	3			
	Other	8			
World Vision	Cereals	75		Cereals	75
	Pulses	1		Pulses	1
	Fruits and vegetables	7		Fruits and vegetables	6
	Animal products	4		Animal products	4
	Other	13		Other	13
Total	Cereals	75			
	Pulses	2			
	Fruits and vegetables	7			
	Animal products	4			
	Other	12			
Urban					
CARE SHAHAR	Cereals	65	NSP urban sites	Cereals	64
	Pulses	2		Pulses	3
	Fruits and vegetables	8		Fruits and vegetables	9
	Animal products	4		Animal products	6
	Other	20		Other	19

Table 3b: The mean percentage of household energy intake provided by different food groups in USAID food security program areas and in comparison areas in Bangladesh, February to March 2002

USAID food security program areas			Comparison areas			
Rural						
CARE BUILD program unions	Cereals	77	CARE BUILD other unions	Cereals	76	
	Pulses	1		Pulses	1	
	Fruits and vegetables	8		Fruits and vegetables	9	
	Animal products	3		Animal products	3	
	Other	11		Other	11	
CARE Flood Proofing	Cereals	80	] NSP rural		
	Pulses	2				
	Fruits and vegetables	8				
	Animal products	3				
	Other	7				
World Vision	Cereals	74		Cereals	76	
	Pulses	1		Pulses	1	
	Fruits and vegetables	8		Fruits and vegetables	7	
	Animal products	4		Animal products	4	
	Other	13		Other	12	
Total	Cereals	77				
	Pulses	1				
	Fruits and vegetables	8				
	Animal products	3				
	Other	11				
Urban						
CARE SHAHAR	Cereals	67	NSP urban sites	Cereals	65	
	Pulses	2		Pulses	3	
	Fruits and vegetables	9		Fruits and vegetables	9	
	Animal products	4		Animal products	6	
	Other	19		Other	17	

Table 3c: The mean percentage of household energy intake provided by different food groups in USAID food security program areas and in comparison areas in Bangladesh, April to May 2002

USAID food security program areas			Comparison areas								
Rural											
CARE BUILD program unions	Cereals	76	CARE BUILD other unions	Cereals	76						
	Pulses	1		Pulses	1						
	Fruits and vegetables	9		Fruits and vegetables	8						
	Animal products	3		Animal products	3						
	Other	11		Other	11						
CARE Flood Proofing	Cereals	81	] NSP rural	Cereals	74					
	Pulses	2				Pulses	2				
	Fruits and vegetables	8						Fruits and vegetables	8		
	Animal products	3								Animal products	4
	Other	7										Other	13
World Vision	Cereals	72		Cereals	74						
	Pulses	2				Pulses	2				
	Fruits and vegetables	9						Fruits and vegetables	8		
	Animal products	4								Animal products	4
	Other	15										Other	13
Total	Cereals	76		Cereals	74						
	Pulses	1				Pulses	2				
	Fruits and vegetables	9						Fruits and vegetables	8		
	Animal products	3								Animal products	4
	Other	11										Other	13
Urban											
CARE SHAHAR	Cereals	66	NSP urban sites	Cereals	66						
	Pulses	2		Pulses	3						
	Fruits and vegetables	10		Fruits and vegetables	10						
	Animal products	3		Animal products	5						
	Other	18		Other	16						

Table 3d: The mean percentage of household energy intake provided by different food groups in USAID food security program areas and in comparison areas in Bangladesh, June to July 2002

USAID food security program areas			Comparison areas		
Rural					
CARE BUILD program unions	Cereals	76	] NSP rural	Cereals	77
	Pulses	1		Pulses	1
	Fruits and vegetables	9		Fruits and vegetables	9
	Animal products	4		Animal products	3
	Other	10		Other	10
CARE Flood Proofing	Cereals	81		Cereals	75
	Pulses	2		Pulses	2
	Fruits and vegetables	7		Fruits and vegetables	8
	Animal products	3		Animal products	4
	Other	7		Other	11
World Vision	Cereals	73		Cereals	75
	Pulses	2		Pulses	2
	Fruits and vegetables	9		Fruits and vegetables	8
	Animal products	4		Animal products	4
	Other	12		Other	11
Total	Cereals	76			
	Pulses	1			
	Fruits and vegetables	9			
	Animal products	4			
	Other	10			
Urban					
CARE SHAHAR	Cereals	67	NSP urban sites	Cereals	66
	Pulses	2		Pulses	3
	Fruits and vegetables	10		Fruits and vegetables	10
	Animal products	4		Animal products	5
	Other	17		Other	16

Table 3e: The mean percentage of household energy intake provided by different food groups in USAID food security program areas and in comparison areas in Bangladesh, August to September 2002

USAID food security program areas			Comparison areas			
Rural						
CARE BUILD program unions	Cereals	77] NSP rural	CARE BUILD other unions	Cereals	77
	Pulses	1		Pulses	1	
	Fruits and vegetables	8		Fruits and vegetables	7	
	Animal products	4		Animal products	3	
	Other	11		Other	11	
CARE Flood Proofing	Cereals	83		Cereals		
	Pulses	1		Pulses		
	Fruits and vegetables	7		Fruits and vegetables		
	Animal products	3		Animal products		
	Other	6		Other		
World Vision	Cereals	75		Cereals		75
	Pulses	2		Pulses		2
	Fruits and vegetables	8		Fruits and vegetables		7
	Animal products	4		Animal products		4
	Other	12		Other		12
Total	Cereals	77				
	Pulses	1				
	Fruits and vegetables	8				
	Animal products	4				
	Other	10				
Urban						
CARE SHAHAR	Cereals	68	NSP urban sites	Cereals	66	
	Pulses	2		Pulses	3	
	Fruits and vegetables	9		Fruits and vegetables	9	
	Animal products	4		Animal products	6	
	Other	18		Other	16	

Table 3f: The mean percentage of household energy intake provided by different food groups in USAID food security program areas and in comparison areas in Bangladesh, aggregate data for December 2001 to September 2002

USAID food security program areas			Comparison areas			
Rural						
CARE BUILD program unions	Cereals	76] NSP rural	CARE BUILD	Cereals	77
	Pulses	1		other unions	Pulses	1
	Fruits and vegetables	8		Fruits and vegetables	8	
	Animal products	4		Animal products	3	
	Other	11		Other	11	
CARE Flood Proofing	Cereals	81		Cereals		
	Pulses	2		Pulses		
	Fruits and vegetables	7		Fruits and vegetables		
	Animal products	3		Animal products		
	Other	7		Other		
World Vision	Cereals	74		Cereals		75
	Pulses	1		Pulses		2
	Fruits and vegetables	8		Fruits and vegetables		7
	Animal products	4		Animal products		4
	Other	13		Other		12
Total	Cereals	76				
	Pulses	1				
	Fruits and vegetables	8				
	Animal products	4				
	Other	11				
Urban						
CARE SHAHAR	Cereals	67	NSP urban sites	Cereals	65	
	Pulses	2		Pulses	3	
	Fruits and vegetables	9		Fruits and vegetables	10	
	Animal products	4		Animal products	5	
	Other	18		Other	17	

Figure 2: The percentage of households in CARE BUILD program unions and CARE comparison (non-program unions) with an energy intake ≥ 1800 kcal/person/d, December 2001 to September 2002.

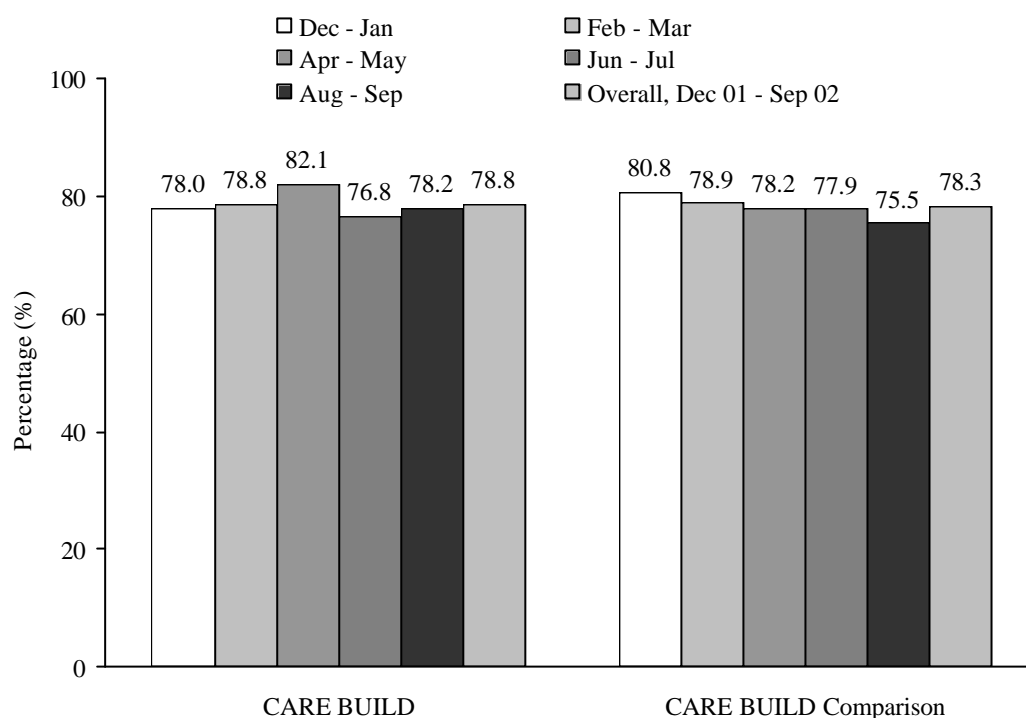


Figure 3: The mean percentage of household energy intake provided by different food groups in CARE BUILD program unions and CARE comparison (non-program unions), aggregate data for the period December 2001 to September 2002. 'Other' includes sugar, oils, nuts and processed foods.

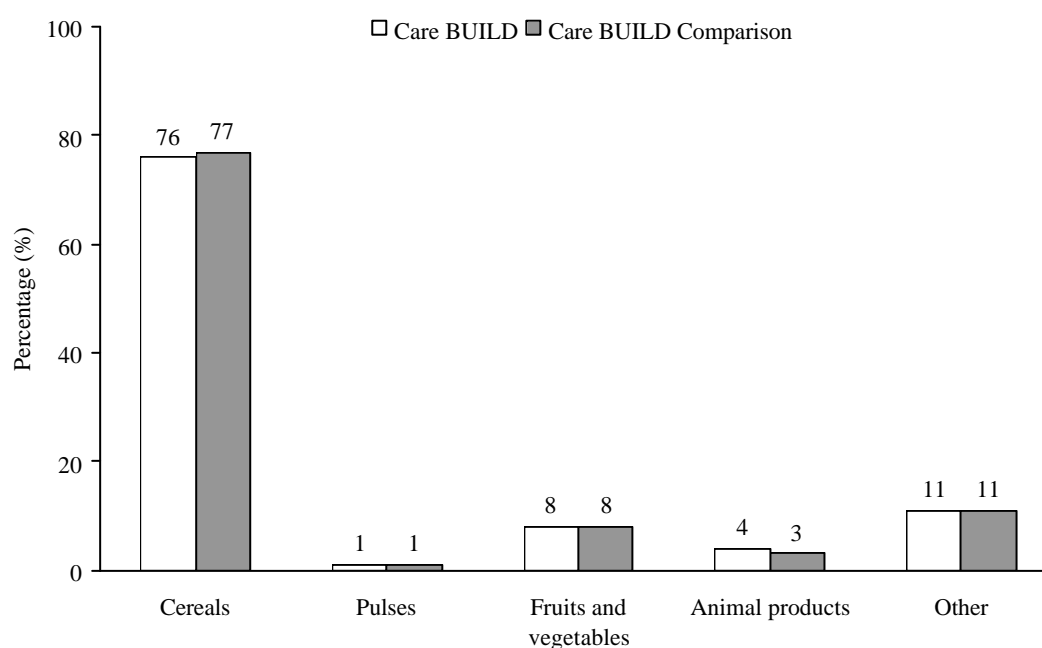
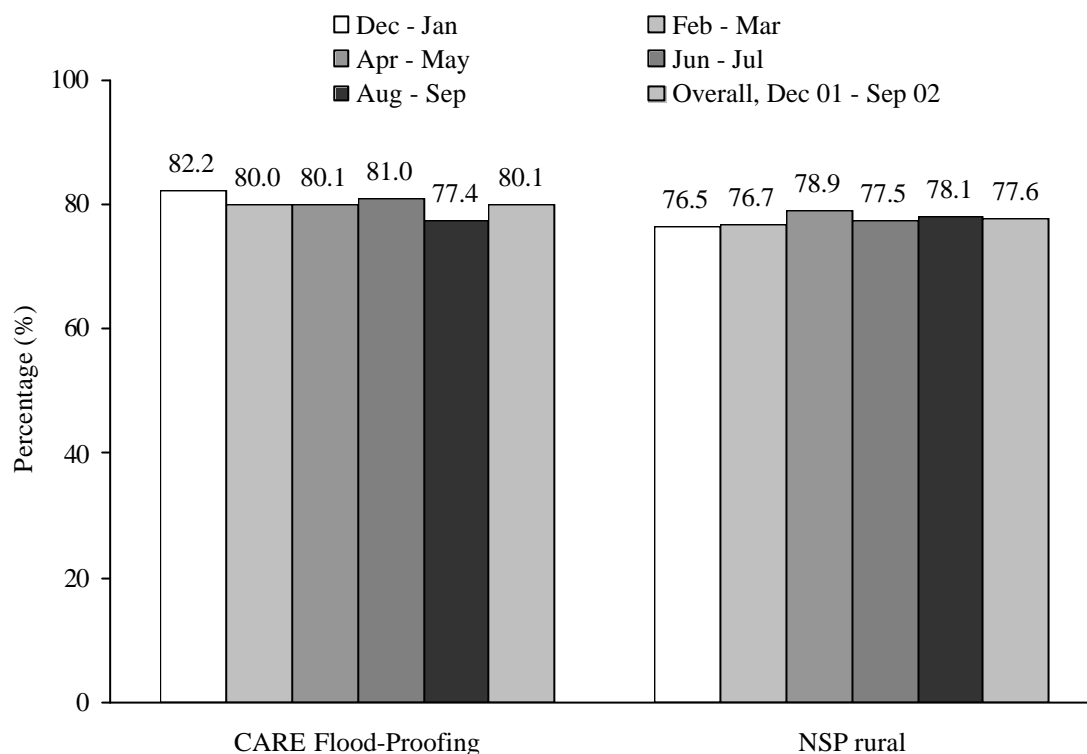


Figure 4: The percentage of households in CARE Flood-Proofing sub-districts and NSP rural



comparison sub-districts with an energy intake ≥ 1800 kcal/person/d, December 2001 to September 2002.

Figure 5: The mean percentage of household energy intake provided by different food groups in CARE Flood-Proofing sub-districts and NSP rural comparison sub-districts, aggregate data for the period December 2001 to September 2002. 'Other' includes sugar, oils, nuts and processed foods.

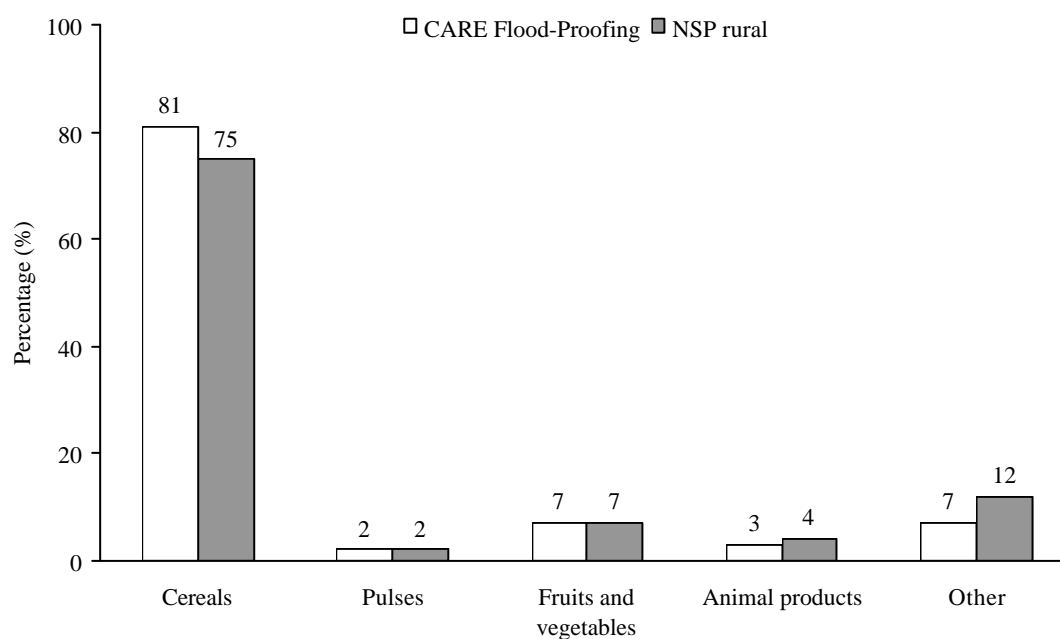
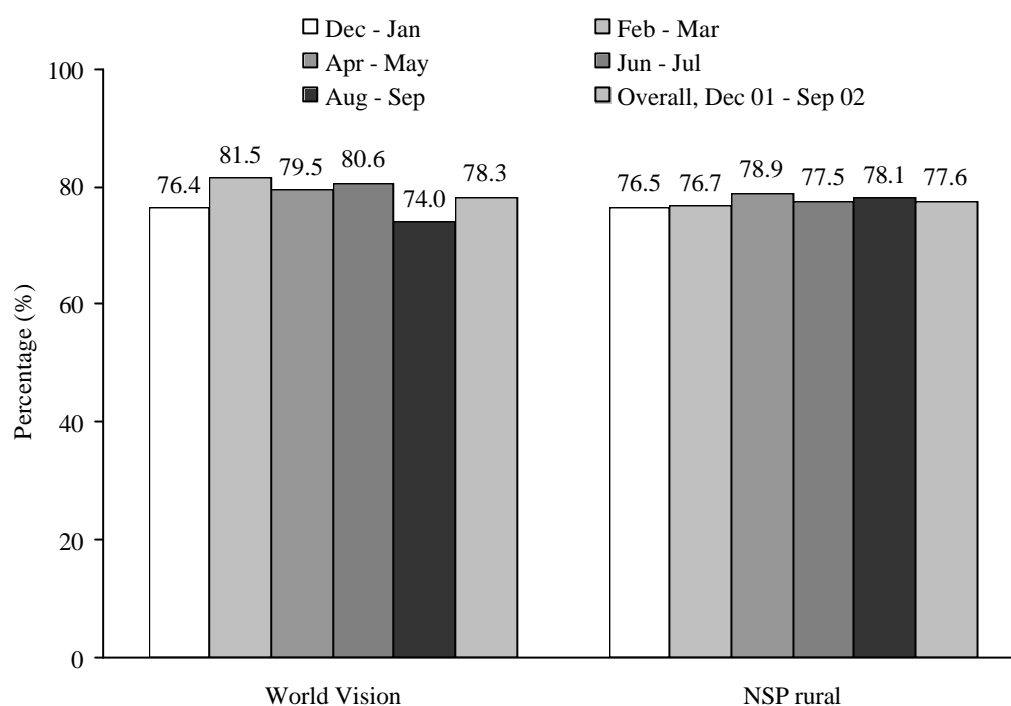


Figure 6: The percentage of households in World Vision sub-districts and NSP rural comparison sub-districts with an energy intake ≥ 1800 kcal/person/d, December 2001



to September 2002.

Figure 7: The mean percentage of household energy intake provided by different food groups in World Vision sub-districts and NSP rural comparison sub-districts, aggregate data for the period December 2001 to September 2002. 'Other' includes sugar, oils, nuts and processed foods.

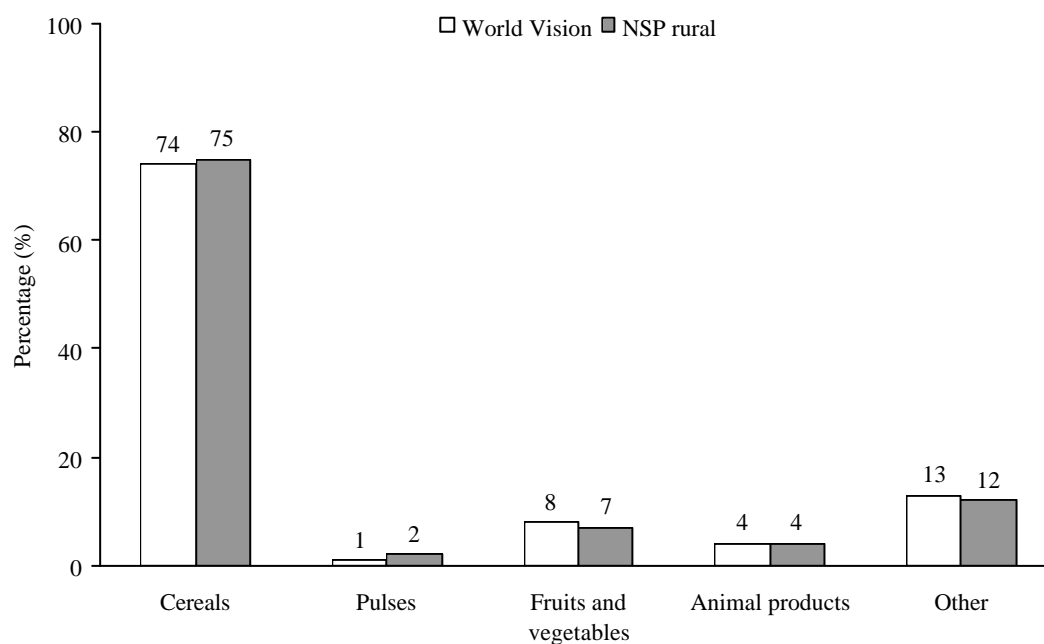
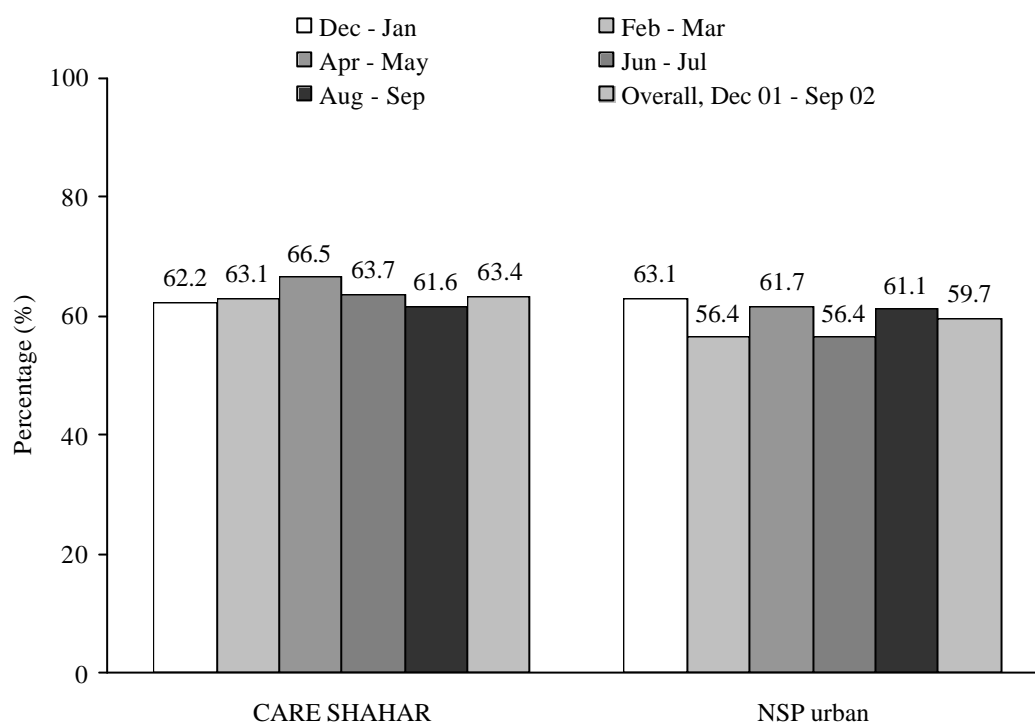


Figure 8: The percentage of households in CARE SHAHAR urban sites and NSP urban comparison sites with an energy intake ≥ 1800 kcal/person/d, December 2001 to September 2002.



September 2002.

Figure 9: The mean percentage of household energy intake provided by different food groups in CARE SHAHAR urban sites and NSP urban comparison sites, aggregate data for the period December 2001 to September 2002. 'Other' includes sugar, oils, nuts and processed foods.

